THE

SCIENTIFIC AND LITERARY REVIEW,

AND

Journal of the Inventors' Institute.

VOLUME XII.

FOR THE YEAR 1877.

"Scire velis, mea cur ingratus opuscula lector
Laudet ametque * * * *
Non ego ventosæ plebis suffragia venor,
Non ego nobilium scriptorum auditor et ultor."

Hor., Ep. I. 19.

LONDON:

PUBLISHED FOR THE PROPRIETOR BY

KENT & CO., 23, PATERNOSTER ROW;

SAMPSON, LOW, SON, & MARSTON, CROWN BUILDINGS, FLEET STREET.

1878.

LONDON:

PRINTED BY EDWIN JOHN DAVEY,

FOY COURT, LUDGATE, HILL E.C.

INDEX TO VOLUME XII.

1877.

*** It is recommended that, in accordance with the plan previously adopted, two years be bound in one volume.*

PAGE

A.

Applications of Letters Patent, 1, 13, 18, 31, 33, 47, 49, 63, 65, 78, 81, 97, 111, 113, 125, 141, 157, 171 174
American Patents and Inventions 5, 78, 115, 170, 186
Advertisements, 1, 16, 17, 32, 33, 48, 49. 64 65, 80, 81, 97, 112, 113, 124, 125, 140, 141, 156, 157, 172, 173 188
Automatic Writing (Collyer's) 5
Auerbach on Anthracen..... 20
Analyst, The 36
Artisans' and Inventors' Patent Law Amendment Committee (Proceedings of).....55, 73
Amendments of the Patents for Inventions Bill 73
Alkali Trade (Kingzett, on the) 84
Annual Meeting of Inventors' Institute 86
Automatic Ventilators (Laudan's)..... 92
Air in Buildings (Purification of) 93
Academy of Music..... 101
Aeronautics 110
American Inventions for New South Wales..... 115
Ashenhurst's Improved Castors 117
Art & Industry in London, 131, 145
Agriculture (Tropical) 144
Art of Metallurgy 160
Astronomical Maps..... 161
Astronomy and Thermodynamics 160
American Patent System 165
Alissoff's Process for Printing Music 166
Anomalies of Temperature of the Boiling Point..... 166
Acoustics 177
Africa (The Traction Engine in) 179

B.

British Association 133, 150
Brown and Harley's Histology 5
Brinsmead on the Pianoforte... 36
Bray's Improved Pole-head ... 39
Botanic Science in Melbourne . 52
Blackley (Dr.) on Hay Fever... 52
Bevan on Industrial Statistics, &c..... 53
Bourne on Imports and Exports 54
Botany (Text-book of) 84
Brakes 130
Bullet Wounds (Explosive) ... 161
Boiling Point (Temperature of) 166

C.

Collyer (D.) on Automatic Writing 5
Cracroft's Trustee's Guide..... 6
Correspondence 21, 54, 169
Centennial Notes..... 29
Cissold's Divine Order of the Universe 53

PAGE

Conference on the Patent Laws 54
Chemical Memoranda 55
Chemistry of the Past Year ... 62
Children's Treasury..... 85
Colony of Victoria 101
Construction of War Ships ... 105
Continuous Brakes 130
Composition for Covering Boilers, &c. 131
Colorado Beetle-killer..... 131
Creeke and Sharp's Sewer Ventilator 162
Crutchley's Maps..... 177
Cassell's Domestic Dictionary . 177

D.

Darwin on Fertilization of Orchids 20
Dramatic Literature 22
Death of M. M. Harris, Esq... 40
Divine Order of the Universe. 53
Dictionary of Mechanics (Cassell's) 54, 84, 177
Darwin on Cross Fertilisation . 100
Design and Work 116
Darwin on Forms of Flowers... 128
Donneley's Improved Engine... 162
Domestic Dictionary (Cassell's) 177
Dyeing 186

E.

Electricity (Lessons in)..... 21
Effect of Vaccination..... 21
Exports (Bourne on) 54
Espir's Explosive Compound... 61
Engineering on the Thames ... 68
Education..... 89
Eltoft's Notes for Chemical Students 101
Engine Driving 144
Electrical Lights..... 168
Explosive Bullet Wounds 161
Electric Log (Kelway's)..... 184

F.

Foreign Science, 7, 21, 60, 74, 85, 102, 117, 139, 146, 168, 185
Fountain on a Spire 77
Fire-proof Flooring 69
Free Ventilation without Draught 102
Flowers (Darwin on) 128
Facts about Metals..... 167
Fish-skins, The Uses of..... 177

G.

Gray (The Late Mrs.) 8
Gleanings..... 8
Granite (Sawing)..... 23
Gibbs on Vaccination 36
Genteel Engineers 57
German *v.* Sheffield Scissors ... 103
Growth of Metals 146
German Trade Marks 147

H.

Histology (Harley's) 5
Harris, M. M. (Death of) 40
Henchie's Trigonometry..... 101

PAGE

Heating (Ritchie's Improvements in) 166

I.

Inventors' Institute (Proceedings of), 3, 9, 24, 38, 40, 55, 72, 86, 88, 104, 164..... 180
Inventors' Dinner 3
Inventors' Institute Petition to Parliament 55
Institution of Civil Engineers. 101
Improved Whaling Gun 110
Index for 1876..... 121
Industry and Art in London 131..... 145
Index of Patents (see Applications for Patents)
Interesting Facts about Metals 167

J.

Janzetta (Sonnet to) 131
Jones's Railway Siding Guard 163

K.

Knight's Dictionary of Mechanics 54
Kingzett on the Alkali Trade... 84
Kelway's Patent Electric Log 184
King on Window Observatories 100

L.

Letters Patent, applications for (see Applications for Letters Patent)
Late Mrs. Gray (the) 8
Lessons in Electricity..... 21
Life-boat services..... 45
London Water 52
Lavatory basins, &c. (Oliver's) 71
Laudan's improved automatic ventilators..... 92
Lighting by Electricity 119
Leverrier 149
Locomotive engine driving..... 144
Lighting (Ritchie's improvements in) 166
Laurie's Science Teacher 176

M.

Monthly Notices, 9, 24, 40, 56, 72. 88, 104, 118, 132, 148, 164 180
Meroë 20
Military Dictionary..... 20
Mathematics versus Nature ... 22
More Patent Office mismanagement 23
M. M. Harris, Esq. (death of) 40
Melbourne (Botanic Science in) 52
Murby's "Excelsior" Readers 52
Mechanics (Dictionary of) 54
Meakin's sash pulleys..... 69
Machine Design (Unwin on)... 84
Music (Royal Academy of) ... 101
Melliss and Robinson on Sewage..... 100
Match-box (Roman's Patent) 116
Music, new 116

PAGE

Mason's improvement in warming railway carriages 131
Metal growth visible 146
Metals (interesting facts about) 167
Music (Alissoff's process for printing) 166
Metallurgy (Art of)..... 160

N.

Nicol's puzzle of life 6
Needlemaker's Company's prizes 7
Nature versus Mathematics ... 22
Notes on the Centennial Exhibition 29
Novel Hydraulic Railway System 46
New Patent Bill (synopsis of) 41
Notes for Chemical Students 101
New form of Bathing house ... 102
New sun and its disappearance 103
New Music 116

O.

Orchids — Fertilization of by Insects 20
Oliver's Patent Urinal and Lavatory basin 71
Our Local Systems and practical education 89
Observatories (Captain King on)..... 101

P.

Proceedings of Societies (see Societies, Proceedings of
Patents (applications for), see Applications for Letters Patent
Patent Laws (The), 7, 25, 41, 54, 73, 144 168
Patent Office Mismanagement 23
Patent Bill (Synopsis of)..... 41
Physical Manipulation (Elements of) 21
Poetry, 47, 55, 163 177
Pole Heads (Bray's Patent) ... 39
Pianoforte (Brinsmead on) ... 36
Petition to Parliament by the Artizans and Inventors' Committee 55
Palmer on Thames Floods..... 68
Propulsion of Torpedo Vessels 68
Propelling vessels..... 70
Physiological Botany (Text book of 84
Practical Education..... 89
Purification of the air in buildings by ventilation and smoke removal..... 93
Premiums awarded by the Institute of Civil Engineers ... 101
Pockilographic Oil Painting ... 116
Public Lighting by Electricity 119
Physiography and Physical Geography 144
Puddling and refining..... 146
Pawson's improvements in taps 163
Preparing surfaces for printing music..... 166
Progress for steam shipping, .. 178
Proposed Shakspeare memorial 184

PAGE

Q.

Quarantine 176

R.

Raising sunken vessels (Hough's plan for) 38
Robinson and Melliss on sewage 100
Royal Academy of Music 101
Railway Carriage (warming)... 131
Report of the Council of the British Association for the year 1876-77..... 147
Refining and puddling 146
Ritchie's improvements in heating and lighting 166
Rocks and roses 176
Review of the progress of steam shipping 176
REVIEWS—
Auerbach on Anthracen..... 20
Analyst (The) 36
Art of Metallurgy 160
Astronomical Map 160
Acoustics 177
Brinsmead on the Pianoforte 36
Botanic Science in Melbourne 52
Blackley on Hay Fever 52
Bevan on the Industrial Classes 53
Bourne on Imports and Exports 54
Collyer on Automatic Writing..... 5
Cracrofts' Trustee's Guide... 6
Clissold on Divine order of the Universe..... 53
Children's Treasury, &c..... 85
Colony of Victoria 101
Crutchley's Maps 177
Cassell's Domestic Dictionary 177
Darwin on Fertilization of orchids by insects 20
Dictionary of Mechanics..... 84
Darwin on cross and self fertilization 100
Design and work 116
Darwin on forms of flowers 128
Domestic Dictionary 177
Electricity (Lessons in) 21
Elements of Physical Manipulation 21
Eltoft's Note book for Chemical Students..... 101
Elements of Chemistry 144
Gibbs on Vaccination..... 36
Harley and Brown's Histology 5
Henchie's Trigonometry ... 101
Knight's Dictionary of Mechanics 54

PAGE

REVIEWS (*Continued*).
Kingzett on the Alkali Trade 64
Kingon window observatories 100
Lessons in Electricity..... ... 21
London Water..... 52
Locomotive Engine driving 144
"Meroë" 20
Military Dictionary 20
Melbourne (Botanic Science in) 52
Murby's "Excelsior" readers 52
Machine Design (Unwin on) 84
Music (New) 116
Metallurgy (Art of)..... 160
Nicol's puzzle of life 6
Physical Manipulation (Elements of) 21
Palmer on Thames Floods ... 68
Pockilographic oil painting 116
Physiographic and Physical Geography 144
Quarantine 176
Robinson and Melliss on Sewage..... 100
Rocks and roses 176
Senses (The)..... 6
Structural and Physiological Botany (Text book of) ... 84
Seat of War..... 116
Sixpenny Manuals of Instruction 116
Straight Lines 144
Safety of ships 179
Text book of Botany 84
Trade marks..... 101
Telegraphic Office 128
Tropical Agriculture 144
Thermodynamics and Astronomy 160
Unwin on Machine Design.. 84
Victoria Mining Report..... 160
Vaccination (Gibbs on) 36

S.

Sonce, Mr. A 19
Schoolboardism 19
Sawing Granite 23
Syphon and ventilation trap (a simple form of) 23
Stifling Patent Law Reform ... 25
School of silk Weaving 39
Synopsis of Patent Bill 41
Sewage question 46
Sulphur for scarlet fever 47
Sash pullies (Meakin's) 69
School systems (our) 89
Scissors..... 103
Sulphur in Iceland 123
Smartt's improved cement..... 163
Sun spots and famine 167

PAGE

Semple's violin finger board note indicator..... 169
Sulphur in gas..... 170
Shakspeare memorial 183
SOCIETIES, PROCEEDINGS OF—
Archæological Institute, 108, 122
Anthropological Institute, 12, 28, 45, 59, 77, 107, 121, ... 182
Astronomical Society, 11, 27, 43, 77, 107, ... 182
Asiatic Society, 12, 58, 76, 91, 109,..... 121
Antiquaries, Society of, 41, 75, 109,... 121
British Archæological Association, 12, 28, 75, 91, 108
Biblical Archæology, Society of, 12, 29, 44, 91, ... 107
Chemical Society, 10, 27, 43, 59, 75, 90, 109,..... 120
Cambridge Philological Society 44
Civil Engineers, Institution of, 10, 26, 43, 76, 90, 106, 183
Entomological Society, 59, 77, 106, 121,..... 182
Engineers, Society of, 10, 76, 90, ... 106
Geographical Society, 12, 27, 43, 58, 75, 107, 120, ... 182
Geological Society, 12, 28, 43, 58, 75, 90, 107, 122,... 182
Historical Society, 12, 44, 91, 121
Inventors' Institute, 3, 9, 24, 38, 40, 55, 72, 76, 88, 104, 164, ... 180
Literature, Royal Society of, 11, 44, 58, 76, ... 120
Linnean Society, 11, 27, 43, 58, 76, ... 108
Meteorological Society, 29, 75, 108,..... 121
Mathematical Society, 12, 28, 44, 76, 106,..... 183
Microscopical Society, 12, 28, 44, 76, 106, ... 183
Numismatic Society, 28, 60, 108, ... 182
Philological Society, 29, 44, 107
Physical Society, 10, 27, 44, 59, 76, 90, 106, ... 120
Psychological Society, 12, 29, 44, 91, 107,..... 120
Photographic Society, 76, ... 109
Quekett Microscopical Society, 13, 45, 60, 76, 91, 106, ... 121
Royal Society, 10, 26, 43, 58, 75, 90, 106, 120, ... 182

PAGE

SOCIETIES (*Continued*).
Royal Institution, 10, 43, 76, 90, 106,..... 120
Statistical Society, 12, 29, 44, 59, 77,..... 120
Shakspeare Society..... 183
Society of Arts, 10, 26, 43, 60, 76, 90,..... 183
Swedenborg Society 110
Telegraph Engineers 69
Zoological Society, 11, 26, 44, 59, 75, 91, 108, 120, .. 182

T.

Torpedo vessels 63
" " (propulsion of) 68
Thames, Engineering on the .. 68
Telephone, The 100
" Varley's..... 122
Trade Marks in Germany 147
Trade Marks (report of commissioners on) 169
Traction Engine in Africa 179
Torpedoes 181
Telephone 186

U.

Unwin on Machine Design .. 84
Urinals (Oliver's Patent) 71

V.

Ventilation Trap (new form of) 23
Vaccination (Gibbs on) 36
Vessels, propelling 70
Ventilators (Laudan's improved) 92
Ventilation of Buildings..... 93
Ventilation without draught .. 102
Victoria..... 101
Varley's Telephone 122
Victorian Mining Report 160
Visible metal growth 146

W.

Weaving, school of 39
Whaling gun, improved..... 110
Warming railway carriages (Mason's improvements in) 131
Weaver's improved natural ventilation 161
Water supply for domestic use 185

X.

Xanthoxate (potassic)..... 155

Y.

Yellow Light 186

BRITISH MUSEUM